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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,818	12/13/2001	Ronald W. Davis	25436/1652	5874

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EXAMINER
SULLIVAN, DANIEL M

ART UNIT	PAPER NUMBER
1636	18

DATE MAILED: 08/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/021,818	DAVIS ET AL.	
	Examiner	Art Unit	
	Daniel M Sullivan	1636	

-- The MAILING DATE of this communication appears on the cover sheet with th correspondence address --

P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) *10-23 and 27-36* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,24 and 25* is/are rejected.

7)☒ Claim(s) *26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 May 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *13,15* .
4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other:

DETAILED ACTION

This is the First Office Action on the Merits of the Application filed 13 December 2001, which claims benefit of U.S. Provisional application 60/256,121 filed 15 December 2000. The substitute specification filed 16 May 2002 has been entered. Preliminary amendments filed 13 March 2002, 6 August 2002 and 23 June 2003 have also been entered.

Election/Restrictions

Applicant's election of Group I (claims 1-9 and 24-26) in Paper No. 16, filed 27 May 2003, is acknowledged. Because applicant did not distinctly and specifically point out errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 10-23 and 27-36 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Invention.

Claims 1-9 and 24-26 are under consideration herein.

Claim Objections

Claim 1 is objected to because of the following informalities: The comma in line 1 is grammatically incorrect. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It would appear that Applicant intends that the claim read on a pair of polypeptides, wherein a first polypeptide of the pair is labeled with a fluorescent dye and a second polypeptide of the pair is a recombinant fusion polypeptide according to claim 1. However, the claim, as written, can also be understood to read on a pair of polypeptides wherein both polypeptides of the pair are labeled with a fluorescent dye and a recombinant fusion polypeptide of claim 1. It is suggested that Applicant amend the claim to clearly set forth the limitations of each polypeptide of the pair.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 4-9 are rejected under 35 U.S.C. 102(b) as being anticipated by von Arnim *et al.* (1998) *Gene* 221:35-43 (made of record in the IDS filed 11 April 2003).

Arnim *et al.* teaches a recombinant tandem dimer of GFP (see especially the paragraph bridging columns 1 and 2 on page 39), and GFP fused to COP9 and FUS6 (see especially page 40, column 2). It is understood in the art, and acknowledged in the instant specification (e.g., page 3, lines 15-20), that GFP is found in nature as a monomer of a multimeric protein. Arnim *et*

al. teaches that COP9 and FUS6 are part of a nuclear protein complex (page 40, column 2, lines 10-12) and are therefore also found in nature as monomers of a multimeric protein. As the recombinant fusion polypeptides of Arnim *et al.* each comprise at least one GFP moiety, the fusion polypeptide is fluorescent when excited. Further, none of the fusion polypeptides form a fluorescent donor-acceptor pair. Therefore, the fusion polypeptides of Arnim *et al.* anticipate all of the limitations of claim 1.

In addition, Arnim *et al.* teaches fusion of a third GFP molecule to the GFP tandem dimer to form a fusion polypeptide further comprising a third polypeptide peptide bonded to the recombinant fusion polypeptide, wherein the third polypeptide is a member of a specific binding pair according to the limitations of claims 4 and 5 (see especially page 39, column 2 and Figure 3D and the caption thereto). Although Arnim *et al.* does not explicitly teach that the third GFP is fused onto the amino or carboxy terminus of the GFP dimer, Arnim *et al.* clearly indicates that either amino- or carboxy-terminal fusions can be made using the vectors depicted in Figure 1 (see especially the paragraph bridging columns 1 and 2 on page 36). Thus, the teachings of Arnim *et al.* anticipate the limitations of claims 6 and 7. Finally, the GFP referred to in the fusion proteins constructed by Arnim *et al.* is the *A. victoria* GFP (see especially the first sentence of the introduction). Thus, the first and second polypeptides that make up the dimeric GFP of Arnim *et al.* are each *A. victoria* GFP according to claims 8 and 9.

The recombinant fusion polypeptides taught by Arnim *et al.* are the same as the fusion polypeptides claimed in the instant application. Therefore, the claims are anticipated by Arnim *et al.*

Claims 1-3 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Wouters *et al.* (September 1999) *Curr. Biol.* 9:1127-1130 (made of record in the IDS filed 11 April 2003).

Wouters *et al.* teaches a recombinant fusion polypeptide comprising an EGF receptor fused to GFP, wherein the EGF receptor is found in nature as a monomer of a multimeric protein (i.e., EGF receptor dimer; see Figure 1) and GFP is also a monomer of a multimeric protein (*Id.*). Further, the EGF receptor and GFP are not fluorescent donor and acceptor to each other and the fusion polypeptide is fluorescent when excited (see especially Figure 2 and the caption thereto). Thus, the fusion protein of Wouters *et al.* meets all of the limitations of the recombinant fusion polypeptide of claim 1. Further, Wouters *et al.* teaches that the EGF receptor and GFP are peptide bonded via a 6 amino acid linker according to the limitations of claims 2 and 3.

Wouters *et al.* also teaches a pair of polypeptides comprising a first polypeptide labeled with a fluorescent dye (i.e., Cy3-anti-PY) and the second polypeptide which is the EGF receptor-GFP fusion protein described above, wherein the fluorescent dye and recombinant fusion polypeptide are fluorescent donor and acceptor to each other (see especially Figure 1 and the caption thereto). Thus, Wouters *et al.* teaches all of the limitations of claim 24.

The recombinant fusion polypeptide and fluorescent labeled polypeptide taught by Wouters *et al.* are the same as those claimed in the instant application. Therefore, the claims are anticipated by Wouters *et al.*

Claims 1-3 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Periasamy *et al.* (1997) *In* Functional Imaging and Optical Manipulation of Living Cells, Proc. SPIE 2983, ed. DL Farkas, BJ Tromberg. Belingham, WA: SPIE.

Periasamy *et al.* teaches recombinant fusion polypeptides comprising Pit-1 fused to GFP and BFP, wherein Pit-1 is found in nature as a monomer of a multimeric protein (i.e., Pit-1 homodimer; third paragraph on page 64) and GFP is also a monomer of a multimeric protein (*Id.*). Pit-1 and GFP or BFP are not fluorescent donor and acceptor to each other and the fusion polypeptide is fluorescent when excited (see especially the first full paragraph on page 62 and Figure 2). Thus, the fusion proteins of Periasamy *et al.* meet all of the limitations of the recombinant fusion polypeptide of claim 1. Further, Periasamy *et al.* teaches that the GFP-Pit-1 fusion protein comprises a 5 amino acid linker according to the limitations of claims 2 and 3 (see especially lines 8-9 on page 60); and, as the GFP and BFP fusion proteins of Periasamy *et al.* are fluorescent donor and acceptor to each other, the fusion protein pair of Periasamy *et al.* also meets the limitations of claim 25.

The pair of recombinant fusion polypeptides taught by Periasamy *et al.* are the same as the fusion polypeptides claimed in the instant application. Therefore, the claims are anticipated by Periasamy *et al.*

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Oker-Blom *et al.* (1996) *FEBS Lett.* 389:238-243 (made of record in the IDS filed 11 April 2003) as evidenced by the NiceProt view of Swiss-Prot: P22629 (available at http://us.expasy.org/).

Oker-Blom *et al.* teaches recombinant fusion polypeptide comprising streptavidin fused to GFP, wherein streptavidin is found in nature as a monomer of a multimeric protein (i.e., streptavidin homotetramer; see NiceProt view of Swiss-Prot: P22629) and GFP is also a monomer of a multimeric protein (*Id.*). Streptavidin and GFP are not fluorescent donor and

acceptor to each other and the fusion polypeptide is fluorescent when excited (see especially Figure 2 and the caption thereto). Thus, the fusion protein of Oker-Blom *et al.* anticipates all of the limitations of the recombinant fusion polypeptide of claim 1.

Allowable Subject Matter

Claim 26 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel M Sullivan whose telephone number is 703-305-4448. The examiner can normally be reached on Monday through Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel, Ph.D. can be reached on 703-305-1998. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-9105 for regular communications and 703-746-9105 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

dms
July 30, 2003

Remy Yucel

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